ONTARIO MINISTRY OF ENVIRONMENT
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OPERATING SUMMARY

1974

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CITY OF

BRANTFORD

WATER POLLUTION CONTROL PLANT

TD
367
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1974

Brantford : water pollution
control plant.

81590

Ontario

MINISTRY OF THE ENVIRONMENT

MINISTER
Honourable William G. Newman

DEPUTY MINISTER
E. Biggs

ASSISTANT DEPUTY MINISTER
REGIONAL OPERATIONS
J. Barr

REGIONAL OPERATIONS DIVISION

DIRECTOR, WEST-CENTRAL REGION
C. Macfarlane

MANAGER, UTILITY OPERATIONS
B. Hansler

BRANTFORD

WATER POLLUTION CONTROL PLANT

operated for

THE CITY OF BRANTFORD

by the

MINISTRY OF THE ENVIRONMENT

1974 ANNUAL OPERATING SUMMARY

prepared by

Plant Performance Unit

TECHNICAL SERVICES BRANCH

T. Cross, Director

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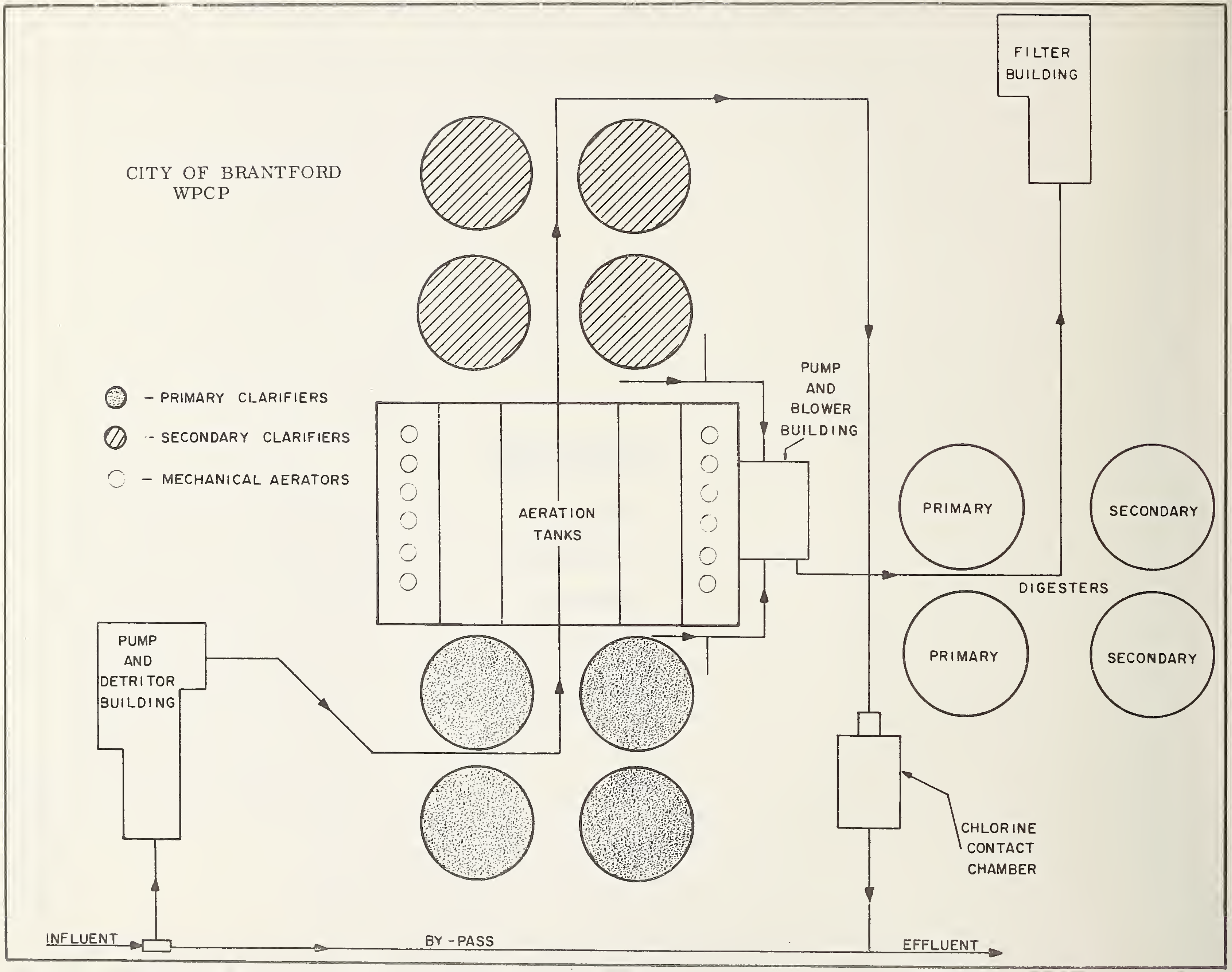


CITY OF BRANTFORD
WPCP

DESIGN DATA

PROJECT	City of Brantford WPCP
PROJECT NO.	2-0011-58
TREATMENT	Activated Sludge
DESIGN FLOW	12.5 mgd
DESIGN POPULATION	65,000
BOD - Raw Sewage	170 mg/l
- Removal	90%
SS - Raw Sewage	175 mg/l
- Removal	90%

PRIMARY TREATMENT

Screening

Type: Coarse bar screens
Size: Two 5 in. spaces

Comminution

Type: Infilco Rotogrator
Size: Two No. 43 (8 mgd ea)

Raw Sewage Pumps

Type: Fairbanks-Morse
Size: Four 3840 gpm ea @ 45' tdh

Grit Removal

Type: Dorr Detritor, Type WA
Size: Two 20' x 20' x 1'-3"
Flow Velocity: 1 fps
Retention: 0.725 min

Primary Sedimentation

Type: Eimco, Type C
Size: Four 70' dia x 10' swd
Retention: 2 hours
Loading: Surface, 812 gal/ft^2/day
Weir, 14,200 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Two triple-pass tanks ACM mech aerators in first pass; Diffused air in 2nd and 3rd passes.

Size of pass, 200' x 30' x 15'
Retention: 7.5 hr

Air Supply

Type: Sutorbilt blowers
Size: Three 4300 cfm

Secondary Sedimentation

Type: Eimco, Type C
Size: Four 70' dia x 10' swd
Retention: 2 hr
Loading: Surface, 812 gal/ft^2/day
Weir, 14,200 gal/ft/day

CHLORINATION

Chlorinator

Type: Fischer & Porter Manual adjustment - liquid chlorine evaporator

Chlorine Contact Chamber

Size: 51' x 18' x 7'
Retention: 5 min

OUTFALL

Grand River

SLUDGE HANDLING

Digestion System

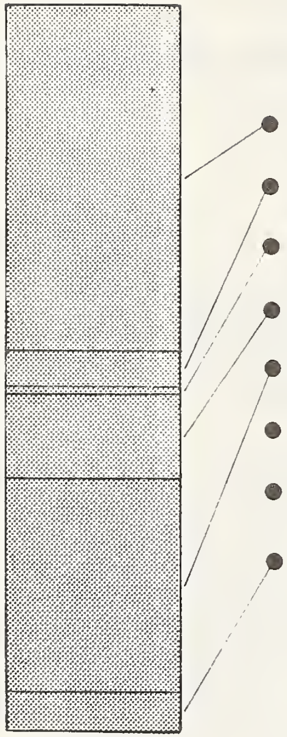
Type: Two-stage
Primary: Two 55' dia tanks with two D-O-L mixers each
Volume 49,300 cu ft or 300,000 gal (each tank)
Loading 6.1 lb/ft^3/mo
Secondary: Two 70' dia tanks with Dorr floating covers
Volume 97,200 cu ft or 600,000 gal (each tank)
Total Loading: 2.0 lb/ft^3/mo

Vacuum Filter

Type: Komline-Sanderson coil filters
Size: Two 350 sq ft filters

ANNUAL COSTS

1974 OPERATING COSTS



SALARIES & WAGES	46%
EMPLOYEE BENEFITS	5%
TRANSPORTATION & COMMUNICATIONS	1%
SERVICES	12%
SUPPLIES & EQUIPMENT	30%
AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS	0%
TRANSFER PAYMENTS	0%
OTHER TRANSACTIONS	6%

YEARLY OPERATING COSTS

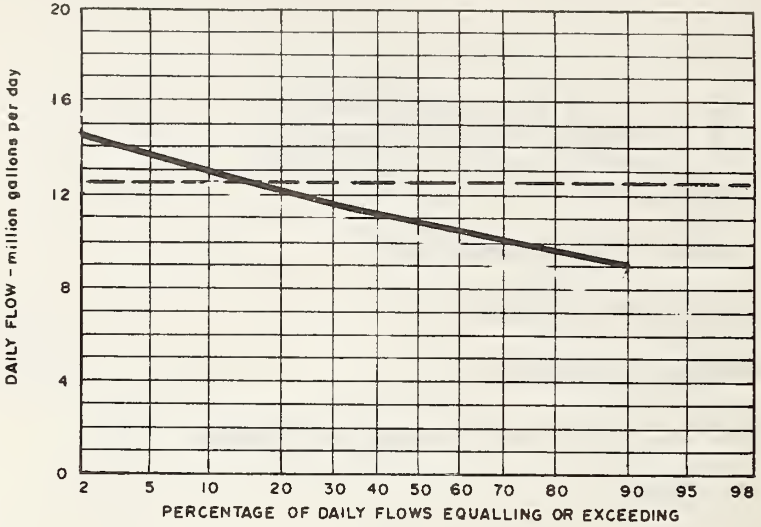
YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS	
			$/M.G	¢/lb BOD
1969	2783	254678	92	5
1970	2748	251542	92	5
1971	2768	262333	95	6
1972	3498	281125	80	5
1973	3577	269229	75	5
1974	3913	416716	106	7

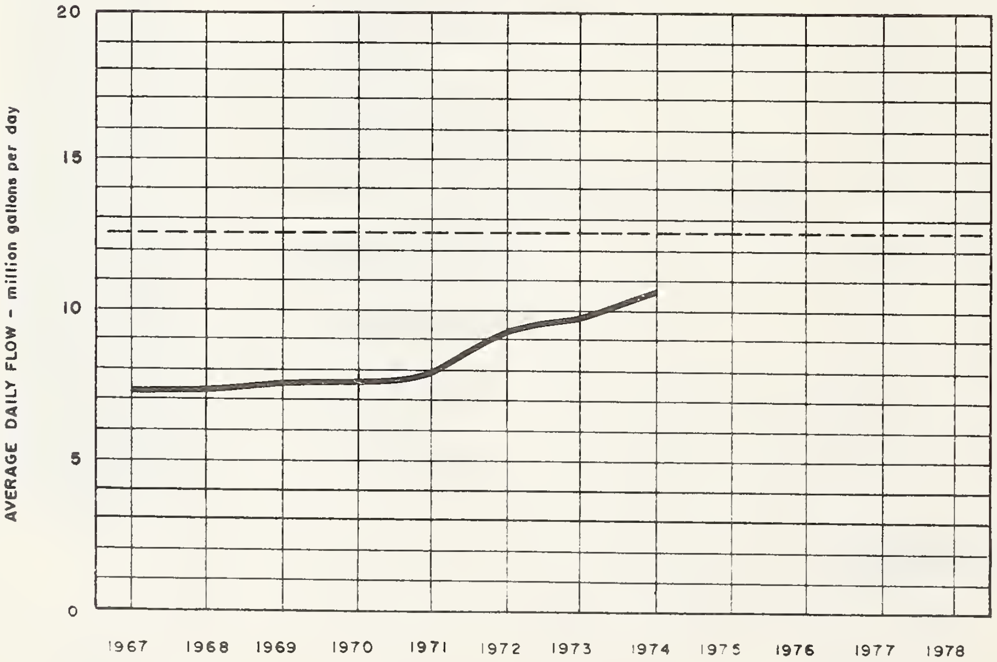
OPERATING EXPENDITURES

Regular Staff	$ 187650	$
Casual (Unclassified) Staff	1273	
TOTAL SALARIES AND WAGES		188923
TOTAL EMPLOYEE BENEFITS		22311
TOTAL TRANSPORTATION AND COMMUNICATIONS		3036
Insurance	5700	
Sludge Haulage	603	
Repairs and Maintenance	5320	
Other Services	39831	
TOTAL SERVICES		51454
Machinery and Equipment	19170	
Chemicals	47506	
Utilities	48708	
Other Supplies and Equipment	9752	
TOTAL SUPPLIES AND EQUIPMENT		125136
TOTAL AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS		
TOTAL TRANSFER PAYMENTS		
OTHER TRANSACTIONS		25856
GRAND TOTAL	GRAND TOTAL	$ 416716

PROCESS DATA

FLOWS



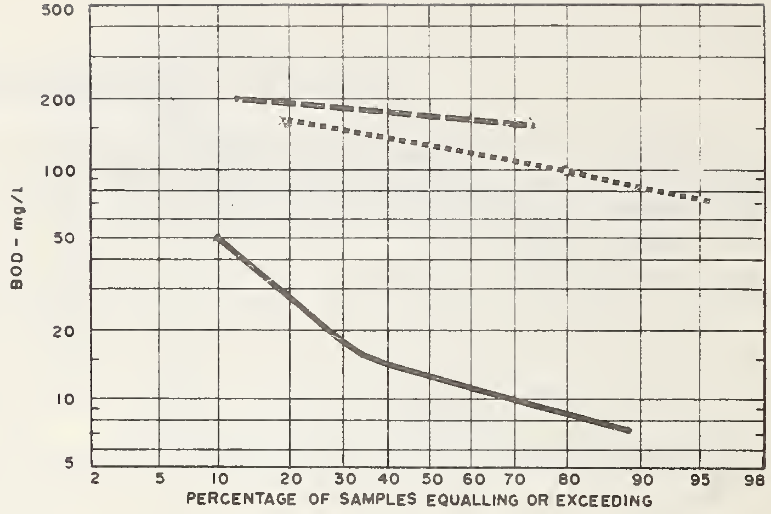


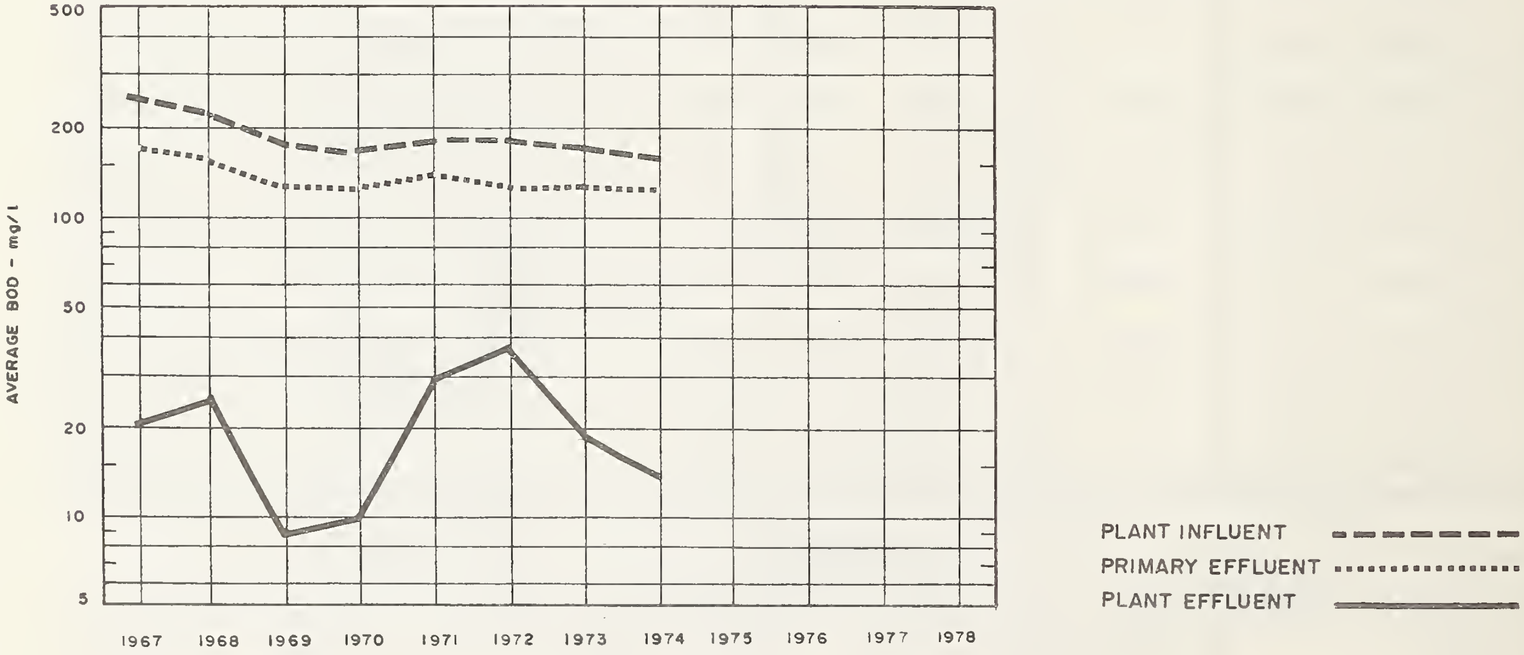
DESIGN CAPACITY — — — — — — —

PLANT PERFORMANCE

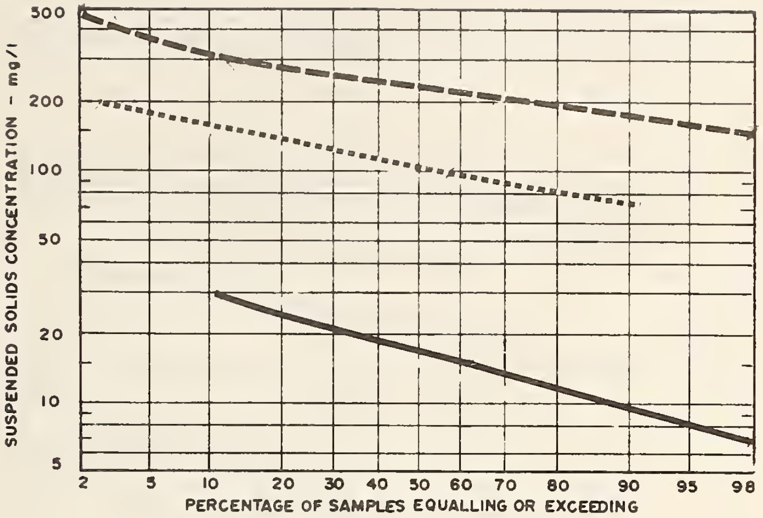
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	REDUCTION 10^3 pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	REDUCTION 10^3 pounds	INFLUENT mg/l P	EFFLUENT mg/l P
JAN	336.8	10.9	14.2	171	21	88	505	216	27	88	637	6.2	1.0
FEB	310.0	11.1	13.8	164	11	93	474	205	13	94	595	6.0	.8
MAR	353.7	11.4	14.2	158	15	91	506	231	26	89	725	6.8	1.1
APR	354.1	11.8	13.8	171	17	90	545	289	17	94	963	4.7	.8
MAY	418.3	13.5	12.7	172	21	88	632	315	21	93	1230	4.2	.5
JUNE	376.1	12.5	14.3	176	15	92	605	237	17	93	827	5.7	1.0
JULY	319.7	10.3	12.6	148	13	91	431	263	17	94	786	6.2	1.2
AUG	291.5	9.4	11.3	133	8	94	364	237	12	95	656	7.0	1.2
SEPT	287.2	9.6	11.7	134	9	93	359	234	14	94	632	6.1	3.6
OCT	286.0	9.2	11.5	181	8	96	495	262	16	94	703	6.3	1.6
NOV	265.7	8.9	10.3	164	13	92	401	304	27	91	736	7.8	1.4
DEC	313.4	10.1	13.0	204	10	95	608	274	26	26	777	4.6	1.1
TOTAL	3912.5	-	-	-	-	-	5908	-	-	-	9312	-	-
AVG.	326.0	10.7	MAXIMUM 14.3	164	13	92	492	257	19	93	776	6.0	1.3
No. of Samples	-	-	-	102	103	-	-	244	245	-	-	99	96

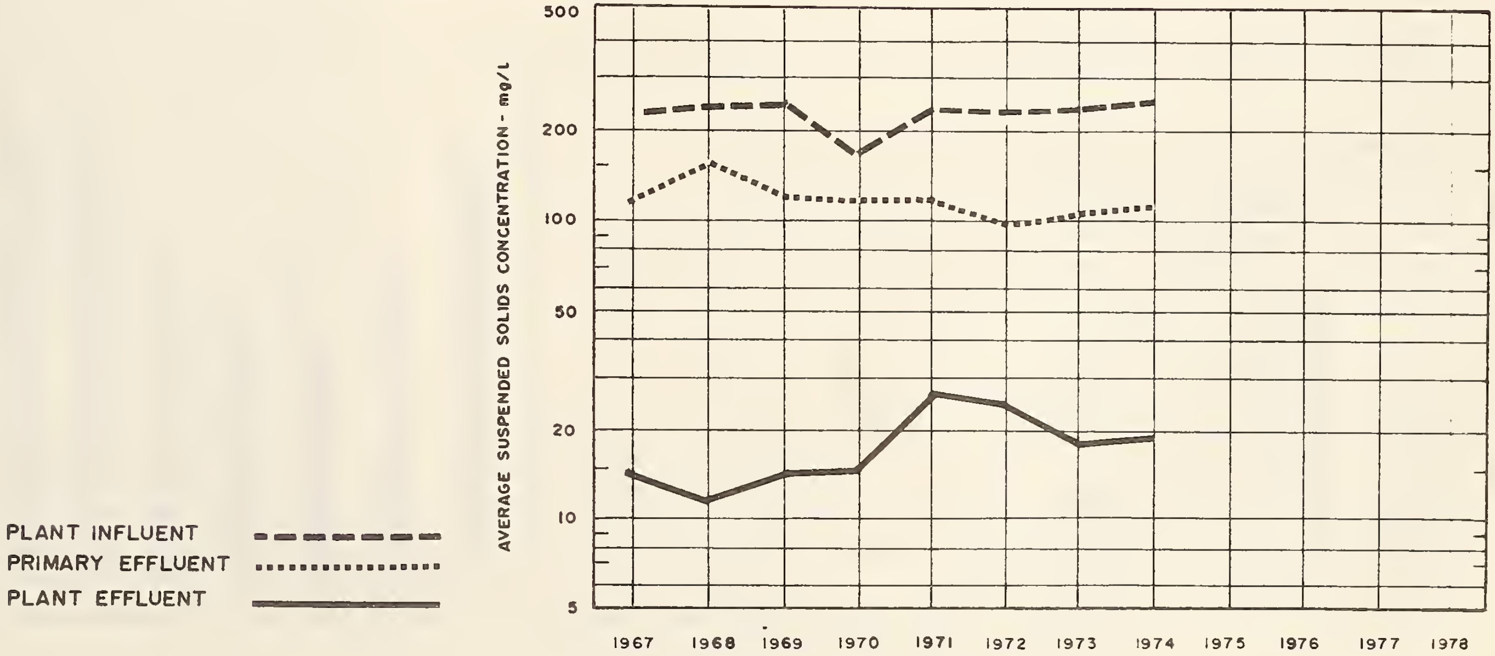
BIOCHEMICAL OXYGEN DEMAND



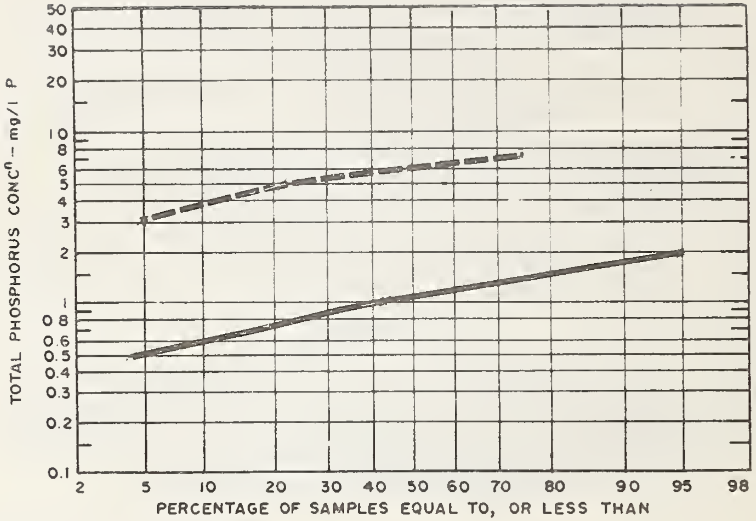


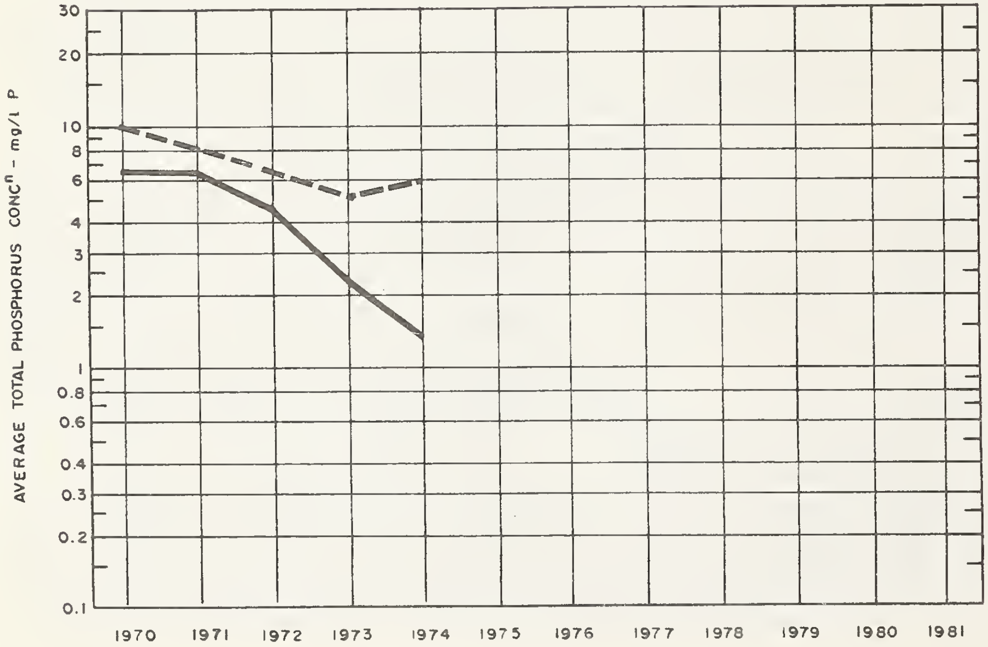
SUSPENDED SOLIDS





PHOSPHORUS

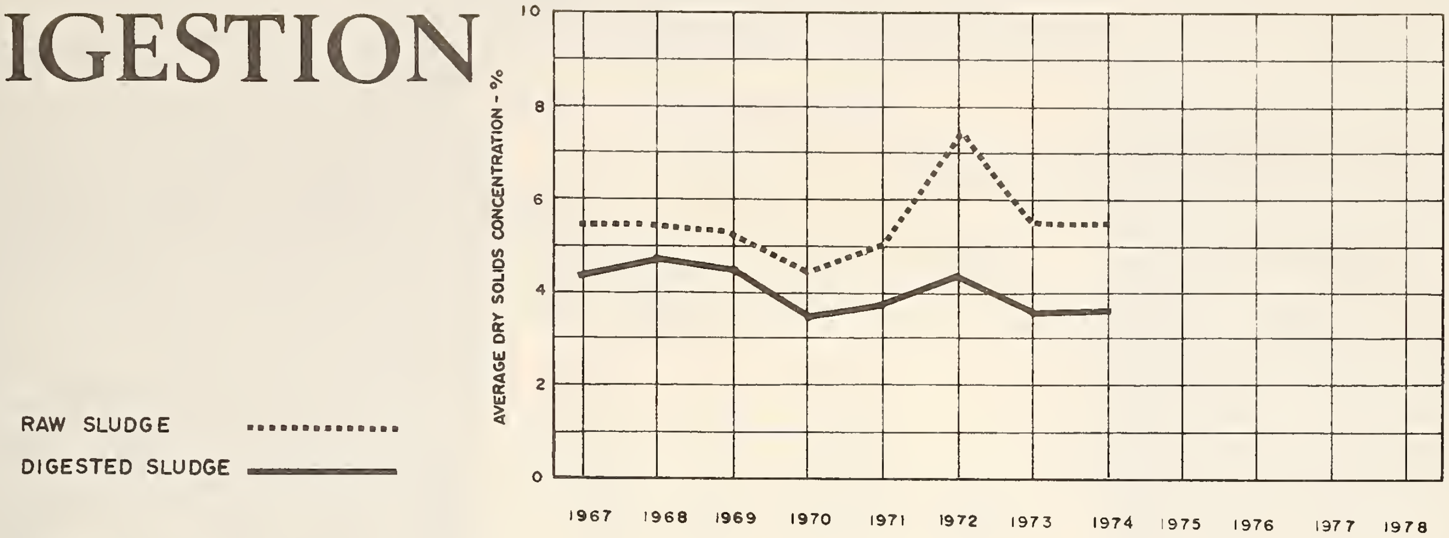


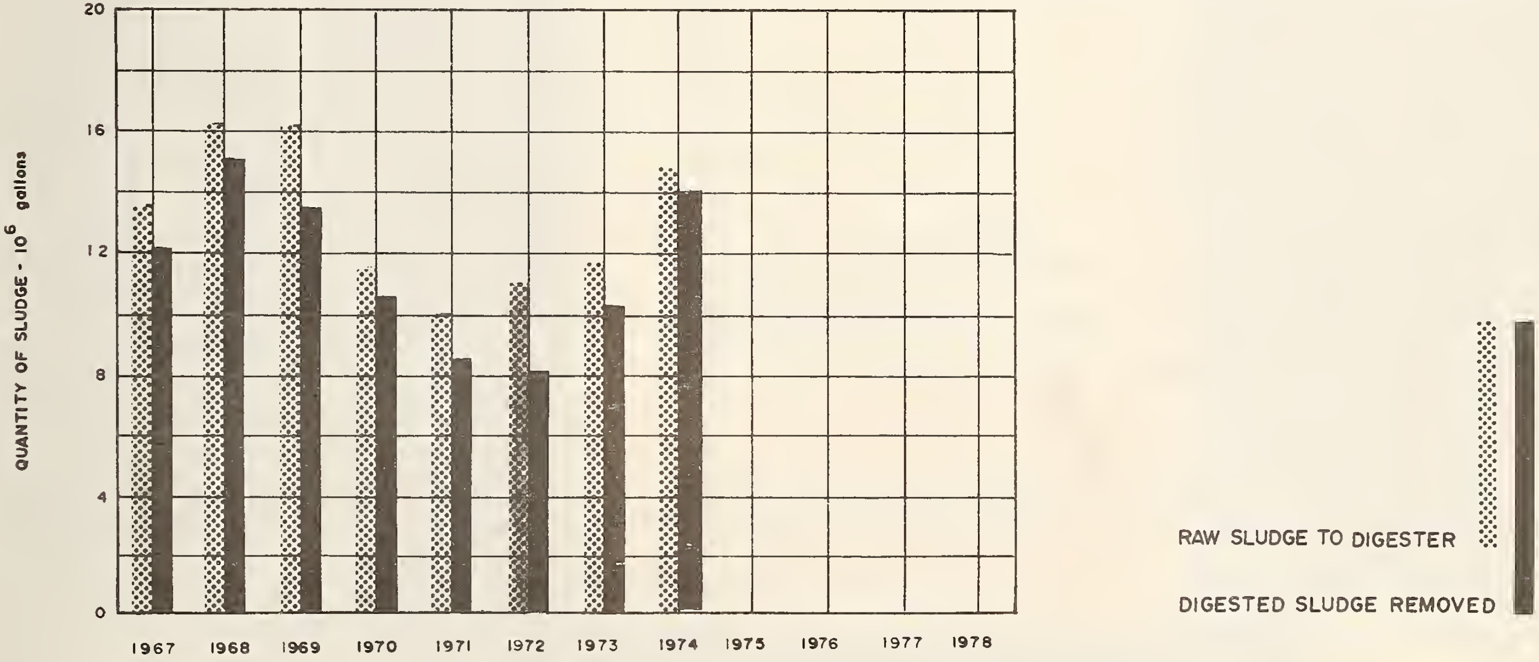


PLANT INFLUENT - - - - - - -

PLANT EFFLUENT ————

DIGESTION


AVERAGE DRY SOLIDS CONCENTRATION - %
10
8
6
4
2
0
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
RAW SLUDGE
DIGESTED SLUDGE


QUANTITY OF SLUDGE - 10^6 gallons
20
16
12
8
4
0
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
RAW SLUDGE TO DIGESTER
DIGESTED SLUDGE REMOVED

TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
									RAW SLUDGE			DIGESTED SLUDGE			SUPER-NATANT	
	QUANTITY REMOVED cubic feet	Cl_2 USED 10^3 pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day^{-1}	AIR $\frac{1000\ ft^3}{lb\ BOD}$	QUANTITY 10^6 gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10^6 gallons	TOTAL SOLIDS %	VOL SOLIDS %	T. S. %	AMOUNT HAULED 10^3 cubic yards
JAN	649	11.0	3.3	132	111	2000	.41		1.0	6.2	72	1.05	2.9	66	-	6.2
FEB	530	9.4	3.0	131	109	2200	.39		1.2	6.9	71	1.24	3.9	58	-	7.4
MAR	673	10.4	2.9	121	124	2200	.38		1.5	6.6	73	1.46	4.2	59	-	8.7
APR	730	10.1	2.8	119	115	2400	.36		1.6	5.8	71	1.31	3.7	61	.7	7.8
MAY	722	10.6	2.5	128	97	2500	.43		1.2	5.8	68	1.11	3.9	58	.1	6.6
JUNE	867	8.8	2.3	121	111	2400	.39		1.1	6.6	68	1.00	4.9	55	.5	5.9
JULY	619	10.2	3.2	99	95	2000	.31		1.3	5.5	66	1.31	4.8	58	-	7.8
AUG	824	9.3	3.2	84	112	2200	.22		.8	5.2	66	1.09	4.8	57	-	6.4
SEPT	679	8.1	2.8	97	135	2800	.20		1.1	4.6	49	1.14	4.3	57	-	6.8
OCT	577	8.7	3.0	132	143	2900	.08		1.4	4.5	71	1.32	1.3	59	-	7.8
NOV	577	9.8	3.7	145	162	3500	.22		1.5	4.7	72	..80	3.2	64	-	4.7
DEC	480	10.0	3.2	148	113	3600	.22		1.4	5.2	72	1.38	3.0	64	-	8.2
TOTAL	7927	116.4	-	-	-	-	-	-	15.1	-	-	14.21	-	-	-	84.3
AVG.	2.0 cu.ft/mil gal	9.7	3.0	120	119	2600	.27		1.3	5.6	68	1.18	3.7	59	.4	7.0

Date Due

ONTARIO WATER RESOURCES COMMISSION
DIVISION OF PLANT OPERATIONS.

BRANTFORD SEWAGE TREATMENT PLANT.
ANNUAL REPORTS.
TD227/W37/1974/MOE
1974

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